

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION**

ORDER No. R2-2003-0032

**UPDATED WASTE DISCHARGE REQUIREMENTS AND RESCISSION OF ORDER
NO. 91-125 FOR:**

CHEVRON LAND AND DEVELOPMENT COMPANY

**HILLTOP WEST PROJECT, FORMER CHEVRON SAN PABLO TANK FARM
RICHMOND, CONTRA COSTA COUNTY**

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter the Regional Board), finds that:

SITE DESCRIPTION & LOCATION

1. The Hilltop West Project (the Site) is a 310-acre portion of the former 800-acre San Pablo Tank Farm located in the City of Richmond, near Pinole Point in western Contra Costa County. The Site is bounded by San Pablo Avenue to the east, Atlas Road to the north, the Richmond Golf Club and Giant Highway to the west, and the Richmond Parkway to the south (Figure 1).

SITE HISTORY & OWNERSHIP

2. The former San Pablo Tank Farm was a crude oil storage facility owned by Chevron U.S.A. from the early 1900's to 1986. Chevron U.S.A. also operated the facility until its closure in 1970.
3. Petroleum storage tanks were first constructed at the Site about 1915. At its peak, the Site contained forty-five 100-foot diameter above-ground petroleum storage tanks (ASTs) and numerous above-ground and below-ground pipelines. By 1987, all ASTs and related piping had been drained, dismantled, and removed as part of Site remediation and in preparation for future Site development.
4. In 1986, the Chevron Land and Development Company (CLDC), which was a wholly-owned subsidiary of Chevron U.S.A., assumed ownership of the property and undertook a large-scale investigation and soil remediation project as part of an effort to redevelop the former tank farm for commercial and residential use. The investigation and soil remediation project included the characterization of soil and groundwater impacts, evaluation of water quality threats, and development of a remedial action plan (RAP), which was implemented in 1988 and 1989.
5. In accordance with the RAP, CLDC constructed on-site repositories for the placement of petroleum hydrocarbon-impacted soil (oily soil). These oily-soil repositories were located in

designated open-space areas (Open-Space Repositories; OSRs) and beneath roadways (Road-Fill Repositories; RFRs). In some cases, repositories were constructed at locations where oily soil could not be completely removed. Herein, "repositories" and "oily-soil repositories" refer collectively to the OSRs and RFRs. Figures 2, 3A & 3B illustrate the repository locations.

6. After repository space was exhausted, some excavated oily soil was temporarily stockpiled onsite, then characterized and reused in accordance with the RAP, as either 1) general construction fill (in designated areas) or 2) construction base material for on-site roadways.
7. Oily soil that could not be completely cleaned up, or that was present at concentrations below the approved action level, was not placed in repositories and was left buried in place at several locations around the Site. Locations where oily-soil was left in place at concentrations above the approved action level, and not otherwise placed in repositories, are referred to as Remain-in-Place (RIP) areas. The upper portions of the oily soil RIP areas were removed and replaced with clean fill in accordance with the RAP. Figures 3A & 3B illustrate the RIP area locations.
8. In the late 1990s, Acacia Construction, Inc. (Acacia), SCS Development Company (SCS), and Berlex Biosciences acquired portions of the Site for residential, commercial, and/or industrial development. The property acquired by Acacia was subsequently sold to Essex Property Trust, Hopkins Real Estate Group, and Santa Clara Valley Housing Group. Currently four development projects exist or are planned at the Site. These include: 1) Essex Property Trust's "Vista Del Mar" project comprising 432 multi-family residential units, common open space, parking, park area, & tennis courts, 2) Hopkins Real Estate Group's commercial project, 3) Santa Clara Valley Housing Group's 88-unit Fairways residential development, and 4) SCS' 135-acre "Park Ridge / Country Club Vista" residential development, consisting of 645 residential units, parks, and recreation space. Figures 3A and 3B illustrate the existing and planned development projects at the site.
9. As a result of site development, three parties, other than CLDC, now own properties containing RIP areas. These include Berlex Biosciences, SCS Development Company, and Essex Property Trust. CLDC currently owns all land where repositories (OSRs & RFRs) exist. Figures 3A and 3B illustrate ownership/development boundaries with respect to repository and RIP area locations.

DISCHARGER

10. Chevron U.S.A. owned and operated the former San Pablo Tank Farm from the early 1900's to 1970, when the tank farm was closed. Chevron U.S.A. retained ownership of the tank farm until the late 1980's, when ownership was transferred to CLDC during site remediation. At that time, CLDC was a separate and distinct company, wholly owned by Chevron U.S.A. CLDC remains a separate and distinct company, but is now a wholly owned subsidiary of ChevronTexaco Global Energy, Inc. CLDC currently owns all lands where repositories exist at the site. As the sole owner of the repositories, CLDC is responsible for waste discharge requirements specified in this Order and is herein referred to as the Discharger.

11. This Order does not impose any further investigation, monitoring, or remediation requirements relative to RIP areas. Long-term groundwater monitoring results have demonstrated that oily soil in RIP areas has not significantly impacted groundwater quality. Furthermore, risk assessments performed on behalf of CLDC and Acacia Construction, Inc., prior to site development, demonstrated that oily soil in RIP areas would not pose any significant potential human or environmental health risks based on the planned industrial, commercial, and residential site usage. Therefore, parties other than CLDC, which now own properties where RIP areas exist, are not named as Dischargers by this Order.
12. In accordance with site development plans, the parties identified in Table 1 have constructed improvements (parking lot, tennis courts, landscaping, and active & passive parks) immediately above repositories (OSRs & RFRs) that are owned by CLDC. These parties have been granted easements by CLDC for construction, operation, maintenance, and repair of the improvements. Table 1 summarizes the existing and planned improvements above repositories and the parties that are responsible for the maintenance and repair of those improvements.
13. As long as the improvements above OSRs & RFRs (Table 1) are constructed, operated, and maintained in a prudent and responsible manner consistent with the applicable amended reports of waste discharge, the provisions of this Order, and the applicable provisions of Title 27, Division 2, Subdivision 1, of the California Code of Regulations (27CCR), it is unlikely that the actions or inactions of parties identified in Table 1 could significantly threaten the integrity of the repositories and/or cause discharge of pollution from the repositories. Therefore, the parties identified in Table 1 are not named as Dischargers by this Order.

Table 1. Improvements Constructed above Oily-Soil Repositories at the Hilltop West Site

Repository	Existing/Planned Improvements	Tenant(s) Responsible for Maintenance & Repair of Improvements
OSR 2/3	Portion east of Richmond Parkway is undeveloped with no future development plans. Central portion underlies Richmond Parkway. Western portion is currently undeveloped; slated for development as an active park by SCS Development. Control of the park will ultimately be turned over to the City of Richmond.	City of Richmond
OSR 3	Active park constructed by SCS Development. Control of park was turned over to the City of Richmond.	City of Richmond
OSR 5	To remain undeveloped in perpetuity. Hydro-seeded with native grasses and wildflowers. Open space "passive park" with single trail and	SCS Development

	weed-control maintenance.	
OSR 5A	To remain undeveloped in perpetuity. Hydro-seeded with native grasses and wildflowers. Open space "passive park" with single trail and weed-control maintenance.	SCS Development
RFR 5C	Southern portion covered with parking lot, paved paths and landscaped areas that were constructed by Acacia Construction prior to their sale of Vista Del Mar development to Essex Property Trust. Northern portion currently undeveloped; slated for development similar to above by Hopkins Real Estate Group. Control of some portion of the landscaped areas may be turned over to the City of Richmond.	Essex Property Trust Hopkins Real Estate Group City of Richmond
RFR 6A	To remain undeveloped in perpetuity. Hydro-seeded with native grasses and wildflowers. Open space "passive park" with single trail and weed-control maintenance.	SCS Development

REGULATORY STATUS

14. In August 1991, the Regional Board adopted Waste Discharge Requirements Order No. 91-125, which established construction, monitoring, and maintenance requirements for the oily-soil repositories and remain-in-place areas at the Site. Order No. 91-125 also required follow-up evaluations of water-quality threats from the repositories and remain-in-place areas.

PURPOSE OF ORDER

15. The purpose of this Order is to update waste discharge requirements (WDRs) regarding the repositories (OSRs & RFRs) and the remain-in-place (RIP) areas at the Site. This Order specifically updates 1) monitoring and maintenance requirements for the repositories, 2) the status regarding ownership and control of the repositories and the RIP areas, and 3) the development history and requirements for future development above the repositories and RIP areas. This Order also rescinds Order No. 91-125.

HYDROLOGY & HYDROGEOLOGY

16. The Site lies about one-half mile east of San Pablo Bay (Figure 1). There are no surface water bodies on-site. Ground surface elevations range from 30 to 225 feet above mean sea level (MSL). Depth to groundwater varies from 15 to 80 feet below ground surface (fbgs). The natural contours of the land have been altered considerably, as numerous embankments, roadways, berms, etc., were constructed for foundations and spill containment during

operation of the tank farm. Figure 4 illustrates groundwater elevations and flow direction across the Site.

17. Sediment and bedrock throughout the Site consist predominantly of sands, silts, clays, sandstone, mudstone, and conglomerate. Unconsolidated sediment above bedrock consists primarily of silty, clayey alluvium and colluvium. Hydrologically, the Site can be divided into two units separated by the Hayward fault, which is located in the southwest corner of the Site and runs roughly north-south across the Site (Figure 2). The fault produces discontinuities in geologic materials, water level elevations, and the magnitude and direction of the hydraulic gradient.
18. Sediments to the west of the Hayward fault consist of unconsolidated alluvial deposits of sands, silts, and clays, that can be several hundred feet thick. Groundwater in this area is unconfined and encountered about 30 fbs (elevation ~10 feet MSL). The hydraulic gradient in this area is to the northwest, approximately parallel to the fault, with a magnitude of about 0.0024 (Figure 4).
19. Sediments to the east of the Hayward fault are more varied in composition, consisting primarily of poorly consolidated mudstone, interbedded with sandstone and conglomerate. Hydraulic gradients in this area are generally northeasterly to northwesterly, ranging in magnitude from 0.035 to 0.07 (Figure 4). Groundwater flow direction east of the fault is generally controlled by the former natural site topography. Groundwater in the deeper sandstone units east of the fault is generally confined and encountered between 15 and 40 fbs.

SITE CHARACTERIZATION AND REMEDIATION

20. Historically, chemicals of concern (COCs) in soil and groundwater at the Site include Total Petroleum Hydrocarbons as gasoline (TPH-g), as diesel (TPH-d), as kerosene (TPH-k), and Total Oil & Grease (TOG), benzene, toluene, ethylbenzene, and xylene (BTEX). These petroleum constituents are likely the result of spills and leaks of petroleum hydrocarbons from ASTs and associated piping that occurred during the operation of the former San Pablo Tank Farm. Site Characterization and Remediation activities occurred from 1987 through 1991 and are documented in the following reports: (1) Occurrence of Petroleum Hydrocarbons in Soils and Ground Water, Hilltop West Area, May 15, 1987; (2) Evaluation of Potential Remedial Actions, Hilltop West Area, December 14, 1987; (3) Report of Waste Discharge, Hilltop West Area, September 30, 1988; (4) Amendment to the Report of Waste Discharge, Hilltop West Area, May 25, 1989; (5) Investigation of Selected Areas, Hilltop West Area, June 1, 1990; (6) Evaluation of Remedial Alternatives, Hilltop West Area, August 1, 1990; (7) Remediation Plan, Open Space and Road Fill Repositories, Hilltop West Area, December 20, 1991; (8) Stockpile Remediation Plan, Hilltop West Area, December 20, 1991.
21. Since initial investigation, over sixty monitoring wells have been installed to characterize groundwater impacts at the Site, before, during, and after remediation. To date, petroleum constituents have been detected sporadically in groundwater samples collected from only a few monitoring wells. Table 2 summarizes the historical maximum and current groundwater

impacts based on the established detection-monitoring program for the Site. Figure 2 shows the current groundwater monitoring well locations.

Table 2. Summary of Maximum Reported Historical and Current Groundwater Impacts at the Hilltop West Site

Contaminant	Maximum Concentration During Initial Characterization (1987–1992) (mg/l)	Maximum Concentration During Most Recent Characterization (2000–2002) (mg/l)
TPH-g	1.7	0.3
TPH-d	1100	0.18
TPH-k	220	0.2
TOG	10	---
benzene	0.42	< 0.0003
toluene	0.24	0.002
ethylbenzene	0.13	< 0.0003
xylene	0.003	< 0.0006

--- No Data.

22. The soil remediation strategy ultimately selected by CLDC consisted of excavation of oily soil exhibiting field-screening and sensory evidence (odors, staining, etc.) of petroleum hydrocarbon impacts. Excavated areas were considered “clean” if confirmation sample results indicated that TPH and TOG concentrations were both below 1,000 milligrams per kilogram (mg/kg). Additional excavation was performed if confirmation sample results exceeded 1000 mg/kg. The excavated soil was then placed in the repositories (see Finding No. 5 and Figure 2).
23. After repository space was exhausted, some excavated oily soil was temporarily stockpiled on site. Characterization of the stockpiled soil showed that it generally contained lower petroleum hydrocarbon concentrations than what had previously been placed in repositories, probably because it was excavated from the distal portions of spill or leak locations (e.g., tanks, pipelines, etc.). Based on these conditions, alternative on-site reuse options were proposed along with reuse standards. In accordance with remediation plans, the stockpiled soil was considered “clean” if TPH-g concentrations were less than 200 mg/kg, TOG concentrations were less than 500 mg/kg, benzene concentrations were not detectable (less than 0.005 mg/kg), and toluene, ethylbenzene, and xylenes concentrations were each less than 10 mg/kg. The stockpiled soil was considered suitable for use as fill below onsite roadways (“roadfill”) if it met all of the criteria for “clean” soil except that for TOG. The stockpiled soil that was determined to be “clean” was used as general construction fill. The remaining stockpiled oily soil was treated, as necessary, to achieve “roadfill” criteria, and used beneath planned roadways (see Finding No. 6).
24. In several areas around the Site, soil with field-screening and sensory evidence of petroleum impacts was left in place either because its removal threatened the stability of overlying or nearby structures (e.g., utilities, roadways, etc.) because it was located at depth such that CLDC considered its removal to be infeasible. In accordance with CLDC’s remedial strategy, the upper portions of oily soil in these remain-in place (RIP) areas was removed

and replaced with clean soil, based on the proposed reuse plan for the location. In proposed industrial use areas, the upper 10 feet of oily soil was removed, and in proposed residential use areas the upper 30 feet of soil was removed. In all RIP areas, the portion of oily soil removed was replaced with clean fill (see Finding No. 7 and Figures 3A & 3B).

25. Risk assessments were performed that supported the selected remediation strategy (*Evaluation of Potential Remedial Actions, Hilltop West Area, December 14, 1987*; *Evaluation of Remedial Alternatives, Hilltop West Area, August 1, 1990*; *Amendment to the Report of Waste Discharge, Hilltop West Area, May 25, 1989*; *Human Health Risk Assessment, Hilltop West Lot 7, September 28, 1999*). These studies concluded that with appropriate engineering controls (e.g., surface separation, clean soil covers, groundwater separation, etc.), potential human and environmental health risks, based on the proposed commercial, industrial, and residential uses, would be satisfactorily mitigated.

Open-Space and Road-Fill Repositories (OSRs & RFRs)

26. From 1987 through 1990, seventeen repositories were constructed for the consolidation of petroleum hydrocarbon impacted soils that exhibited specified sensory cues or that exhibited petroleum hydrocarbon concentrations in excess of 1,000 mg/kg TPH and TOG, in accordance with approved remediation plans. The description and status of the repositories are summarized in Tables 3 and 4. Locations are shown on Figures 2, 3A & 3B.
27. OSRs 2/3, 3 & 5 and RFRs 5 & 6 were constructed with a minimum one-foot thick compacted clay bottom liner. The Area 1 repositories (OSR 1A, RFRs 1A, 1AM, & 1B) do not have engineered liners, rather they are underlain by native low-permeability silts and clays. All other repositories (OSRs 2/3A, 5A; RFRs 3, 5A, 5B, 5C, 6A, 6B) have engineered two-foot thick compacted clay bottom liners. RFRs were typically capped with a minimum one-foot thick compacted clay cap, a minimum one-foot soil cover, and a pavement layer in locations where street construction occurred. OSRs were typically capped with a minimum two-foot thick compacted clay cap and a four-foot thick vegetative soil layer. The bottom liners of seven repositories (RFR 3, 5A, 5B, 5C, 6A, 6B, and OSR 5A) are sloped to a low point to facilitate future leachate extraction, if necessary. All repositories have downgradient wells designated as potential extraction wells if future leachate/groundwater extraction becomes necessary. Remaining in place oily soil beneath OSR 2/3, RFR 6, and RFR 6A may be in contact with groundwater. Remaining in place oily soil beneath OSR 3 is separated from groundwater by about ten feet.

Table 3. Open-Space Repositories for Petroleum Hydrocarbon Impacted Soils at the Hilltop West Site

Open-Space Repositories (OSRs) at the Hilltop West Site	
OSRs	Description & Current Status
1A	OSR 1A and RFRs 1A, 1AM, 1B and 1BM, are located in Area 1, a 15.1 acre area located west of the Hayward fault in the southwest corner of the Site (Figure 2). Repositories in Area 1 do not have engineered bottom liners but are capped with compacted clay and asphalt as part of the Richmond Parkway and associated off-ramps, or form sound barriers adjacent to the Parkway. Changes to the design of the Richmond Parkway-Giant Highway interchange required re-contouring of OSR 1A, RFR 1A and RFR 1B in 1993. Currently, OSR 1A is undeveloped with no future development plans.
2/3	Constructed with a minimum one-foot thick compacted clay bottom liner and a minimum two-foot thick compacted clay cap. Some impacted soil relocated to OSR 5A in 1999 during Park Ridge residential development; clay cap restored. The OSR is located between residential units with a minimum twelve-foot "no-development" setback. Remaining in place oily soil beneath this repository may extend to the groundwater table. The portion west of Richmond Parkway is undeveloped with no future development plans. The central portion underlies Richmond Parkway. The western portion is currently undeveloped; slated for development as an active (vegetated & irrigated) open space park by SCS Development. Control of the park will ultimately be turned over to the City of Richmond.
2/3A	Constructed with a minimum two-foot thick compacted clay bottom liner and a minimum two-foot thick compacted clay cap. Underlies Richmond Parkway.
3	Constructed with a minimum one-foot thick compacted clay bottom liner and a minimum two-foot thick compacted clay cap. Some impacted soil was relocated to OSR 5A in 1999 during Park Ridge residential development and the clay cap was restored. Currently, the OSR is covered with an active (vegetated & irrigated) open space park constructed by SCS Development. Control of park was turned over to the City of Richmond. The OSR is located between residential units with a minimum twelve-foot "no-development" setback. Remaining in place oily soil beneath this repository is separated from groundwater by about ten feet.
5	Constructed with a minimum one-foot thick compacted clay bottom liner and a minimum two-foot thick compacted clay cap. Some impacted soil was relocated to OSR 5A in 1999 during Park Ridge residential

	development and the clay cap was restored. To remain undeveloped in perpetuity. Hydro-seeded with native grasses and wildflowers. Open space "passive park" with single trail and weed-control maintenance.
5A	Constructed with a minimum two-foot thick compacted clay bottom liner and a minimum two-foot thick compacted clay cap. Some impacted soil was relocated to OSR 5A in 1999 during Park Ridge residential development and the clay cap was restored. To remain undeveloped in perpetuity. Hydro-seeded with native grasses and wildflowers. Open space "passive park" with single trail and weed-control maintenance.

Table 4. Road-Fill Repositories for Petroleum Hydrocarbon Impacted Soils at the Hilltop West Site

Road-Fill Repositories (RFRs) at the Hilltop West Site	
RFRs	Description & Current Status
1A	OSR 1A and RFRs 1A, 1AM, 1B and 1BM, are located in Area 1, a 15.1 acre area located west of the Hayward fault in the southwest corner of the Site (Figure 2). Repositories in Area 1 do not have engineered bottom liners but are capped with compacted clay and asphalt as part of the Richmond Parkway and associated off-ramps, or form sound barriers adjacent to the Parkway. Changes to the design of the Richmond Parkway-Giant Highway interchange required re-contouring of OSR 1A, RFR 1A and RFR 1B in 1993.
1AM	OSR 1A and RFRs 1A, 1AM, 1B and 1BM, are located in Area 1, a 15.1 acre area located west of the Hayward fault in the southwest corner of the Site (Figure 2). Repositories in Area 1 do not have engineered bottom liners but are capped with compacted clay and asphalt as part of the Richmond Parkway and associated off-ramps, or form sound barriers adjacent to the Parkway. The RFR is undeveloped with no future development plans. May contain typical "roadside" landscaping.
1B	OSR 1A and RFRs 1A, 1AM, 1B and 1BM, are located in Area 1, a 15.1 acre area located west of the Hayward fault in the southwest corner of the Site (Figure 2). Repositories in Area 1 do not have engineered bottom liners but are capped with compacted clay and asphalt as part of the Richmond Parkway and associated off-ramps, or form sound barriers adjacent to the Parkway. Changes to the design of the Richmond Parkway-Giant Highway interchange required re-contouring of OSR 1A, RFR 1A and RFR 1B in 1993.
1BM	OSR 1A and RFRs 1A, 1AM, 1B and 1BM, are located in Area 1, a 15.1 acre area located west of the Hayward fault in the southwest corner of the

	Site (Figure 2). Repositories in Area 1 do not have engineered bottom liners but are capped with compacted clay and asphalt as part of the Richmond Parkway and associated off-ramps, or form sound barriers adjacent to the Parkway. The RFR is undeveloped with no future development plans. May contain typical "roadside" landscaping.
5	Underlies Richmond Parkway. Constructed with a minimum one-foot thick compacted clay bottom liner and a minimum one-foot thick compacted clay cap.
5A	Underlies Richmond Parkway. Constructed with a minimum two-foot thick compacted clay bottom liner and a minimum one-foot thick compacted clay cap.
5B	Underlies Richmond Parkway. Constructed with a minimum two-foot thick compacted clay bottom liner and a minimum one-foot thick compacted clay cap.
5C	Constructed with a minimum two-foot thick compacted clay bottom liner and a minimum two-foot thick compacted clay cap. The southern portion is covered with parking lot, paved paths and landscaped areas that were constructed by Acacia Construction prior to their sale of Vista Del Mar development to Essex Property Trust. The northern portion is currently undeveloped and slated for development similar to above by Hopkins Real Estate Group. Control of some portion of the landscaped areas may be turned over to the City of Richmond. Some oily soils were relocated to other road-fill areas during site development.
6	Constructed with a minimum one-foot thick compacted clay bottom liner and a minimum one-foot thick compacted clay cap. The RFR resides beneath portions of the Richmond Parkway and Atlas Road near their intersection (see Figure 2). The RFR is penetrated by a sewer line exiting the Vista Del Mar project beneath the Richmond Parkway. The sewer line exits RFR 6 west of Richmond Parkway and North of Atlas Road, then re-enters the RFR beneath Atlas Road for about 190 feet. Within the RFR, the sewer line trench is lined with 1 foot of compacted clay and the pipe itself is double-contained. Remaining-in-place oily soil beneath this repository may extend to the groundwater table.
6A	Constructed with a minimum two-foot thick compacted clay bottom liner and a minimum one-foot thick compacted clay cap. Some impacted soil was relocated to OSR 5A in 1999 during Park Ridge residential development. To remain undeveloped in perpetuity. Hydro-seeded with native grasses and wildflowers. Open space "passive park" with single trail and weed-control maintenance.
6B	Underlies Richmond Parkway. Constructed with a minimum two-foot

	thick compacted clay bottom liner and a minimum one-foot thick compacted clay cap.
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28. Table 5 summarizes the maximum petroleum hydrocarbon concentrations in soils deposited in repositories.

Table 5 Maximum Petroleum Hydrocarbon Concentrations in Soil in Repositories at the Hilltop West Site

	Maximum Petroleum Hydrocarbon Concentrations in Soil Placed in Repositories (1987 – 1990) (mg/kg)
	OSRs & RFRs
TPH-g	4,300
TPH-d	50,560
TPH-k	11,600
TOG	482,750
Benzene	6.2
Toluene	14
Ethylbenzene	46
Xylenes	183

Temporary Oily Soil Stockpiles

29. In 1989, about 545,000 cubic yards (cy) of impacted soil was temporarily stored on site in three stockpiles (stockpile A = 160,000 cy, B = 60,000 cy, C = 325,000 cy) because repository space had been exhausted. As discussed in Finding No. 23, alternative on-site reuse options were proposed along with reuse standards. In accordance with remediation plans, the stockpiled soil was considered “clean” if TPH-g concentrations were less than 200 mg/kg, TPH-d and TOG concentrations were less than 500 mg/kg, benzene concentrations were not detectable (less than 0.005 mg/kg), and toluene, ethylbenzene, and xylenes concentrations were each less than 10 mg/kg. The stockpiled soil was considered suitable for use as fill below onsite roadways (“roadfill”) if it met all of the criteria for “clean” soil except that for TOG..
30. The clean temporary stockpiled soil was used as general construction fill in a portion of the Site known as “Area G”, where groundwater was at least 40 to 45 feet below ground surface (bgs). Area G is located east of OSR 5C (see Figure 2), and had been designated for commercial use only. The remaining oily soil from the stockpiles was treated, as necessary, to achieve roadfill criteria, and was placed beneath roadways in four to five-foot thick layers. Table 6 summarizes the maximum petroleum hydrocarbon concentrations in the stockpiled soil prior to segregation of the stockpiles and treatment of the soil to meet roadfill criteria.

Table 6 Maximum Petroleum Hydrocarbon Concentrations in Soil in Temporary Stockpiles Used in Area G and as Roadway Fill at the Hilltop West Site prior to Treatment

	Maximum Petroleum Hydrocarbon Concentrations in Stockpiles (1989) (mg/kg)
TPH-g	230
TPH-d	3200
TPH-k	270
TOG	4700
Benzene	0.8
Toluene	3.2
Ethylbenzene	4.0
Xylenes	15

Buried Remain-in-Place (RIP) Oily Soil Areas

31. Originally, twenty-eight remain-in-place (RIP) areas were present on site at the conclusion of remedial activities in early 1989. As discussed in Finding No. 24, RIP areas were locations where oily soil, in excess of established cleanup standards, remained in place either because (1) its removal threatened the stability of overlying or nearby structures (e.g., utilities, roadways, etc.) or (2) it was located at depth such that the CLDC considered its removal to be economically and/or technologically infeasible. In accordance with CLDC's remedial strategy, the upper portions of oily soil in these remain-in-place (RIP) areas had been removed and replaced with clean fill, based on the proposed reuse plan for the location. In proposed industrial use areas, the upper 10 feet of oily soil was removed and replaced with clean fill, and in proposed residential use areas the upper 30 feet of soil was removed and replaced with clean fill. The oily soil removed from the upper portions of the RIP areas was added to the on-site repositories or to the temporary stockpiles described previously.
32. Several events affecting the RIP areas occurred following the conclusion of remedial activities in 1989. In 1992 CLDC removed RIP area 5-04, and treated soil in RIP areas 3-12 and 3-20 to reduce benzene levels. Treatment of soil in area 3-12 included removal of approximately 265 cy of oily soil. In 1998 SCS Development removed RIP areas 2-01, 2-05 and 6-03. In addition, investigations performed by CLDC in 1990 and SCS in 1998 could not verify the presence of several areas identified as RIP areas in 1989. RIP areas were also renumbered and consolidated in reports prepared after 1989. As a result of these activities there are now 19 areas currently identified as RIP areas (see Figures 3A & 3B), containing a total of approximately 424,610 cubic yards of soil with detectable petroleum hydrocarbons. RIP area soils have been characterized as follows with respect to petroleum hydrocarbon concentrations:

- 30,360 cy with TPH and/or TOG > 1,000 mg/kg
- 59,910 cy with TPH > 200 mg/kg and/or TOG > 500 mg/kg
- 122,770 cy with TPH and/ or TOG > 100 mg/kg
- 211,570 cy with TPH and/or TOG between 10 and 100 mg/kg

Table 7 summarizes the maximum petroleum hydrocarbon concentrations in each RIP area.

Table 7. Maximum Petroleum Hydrocarbon Concentrations in Soils in Remain-in-Place (RIP) Areas at the Hilltop West Site

RIP Area	TPH (mg/kg)	TOG (mg/kg)	RIP Area	TPH (mg/kg)	TOG (mg/kg)
2-02	11000	11000	5-20	5900	55000
2-10	410	1600	5-24	ND	1250
2-19	4.4	290	5-25	15000	8000
2-21	620	265	6-04	7400	48000
2-22	34	100	6-07	1100	910
2-24	95	350			
3-09	2180	13900			
3-12 ⁽¹⁾	3500	65000			
3-20 ⁽¹⁾	7000	54000			
3-21	35400	3300			
4-01	500	360			
5-02	1500	2660			
5-04	750	1200			
5-19	290	140000			

(1) Concentrations do not reflect subsequent remediation to reduce benzene levels; TPH and TOG levels were not measured following benzene remediation, but a significant reduction in these levels most likely occurred.

WASTE MANAGEMENT UNITS

33. In accordance with Title 27, Division 2, Subdivision 1, of the California Code of Regulations (27CCR), oily soil in repositories at the Site is considered a Class II, designated waste, with the potential to impact water quality. Furthermore, the oily-soil repositories at the Site are considered defacto Class II waste management units (WMUs), although many do not meet all 27CCR design and construction criteria for Class II units. Specifically, many repositories do not meet one or more of the 27CCR Class II standards for separation of waste from groundwater, leachate collection and recovery systems, and low-permeability liners.
34. Based on more than ten years of groundwater monitoring data from more than sixty wells, CLDC has demonstrated that oily soil in repositories, RIP areas, and beneath roadways, has not significantly impacted groundwater quality. This is due to three primary mitigating factors: (1) the large thickness of low-permeability sediments separating the oily soil from groundwater in most cases (> 10 feet), (2) the engineered clay liners in most repositories, (3)

the engineered clay caps covering all repositories. In areas where oily soil is less than 10 feet from groundwater, or where no low-permeability liner exists between oily soil and groundwater, such as OSR 2/3, RFRs 6 & 6A, groundwater impacts may be more likely than in other areas. The monitoring program established pursuant to this Order is designed to detect groundwater impacts such that the need for remedial response can be adequately evaluated.

SITE DEVELOPMENT

35. In 1996, the City of Richmond received an application from CLDC to subdivide approximately 290 acres of the Site into 13 lots for residential and commercial/industrial development. The proposed project area was previously evaluated in an Environmental Impact Report (EIR) that was prepared for the Hilltop Tank Farm General Plan Amendment in 1980, and an Initial Study/Negative Declaration for the Hilltop North and West General Plan Amendment in 1985. In accordance with the California Environmental Quality Act (CEQA), an Initial Study was prepared for the proposed subdivision to determine if a new EIR would be necessary. The 1996 Initial Study concluded that a new EIR was not needed for the residential & commercial/industrial subdivision (Hilltop West Tentative Map, Initial Study, September 1996). Figure 5 illustrates the Site subdivision into 13 lots for future development.
36. As discussed in Finding No. 8, four development projects have occurred or are planned at the Site to date. Design plans for two developments can be found in the Amended Reports of Waste Discharge (AROWDs) dated August 10, 1999, April 18, 2000, and October 9, 2000 for the Vista Del Mar project, and dated December 18, 1997 and October 5, 1998 for the Park Ridge/Country Club Vista project. The Vista Del Mar project currently comprises 432 multi-family residential units, common open space, parking, park area, and tennis courts. The Park Ridge/Country Club Vista project is a 135-acre residential development, consisting of 645 residential units, parks, and recreation space (Figures 3A & 3B).
37. During construction for the Park Ridge project, three RIP areas were completely relocated during grading activities. These RIP soils (~200 cy) were relocated into a 22-foot deep trench excavated beneath Tanglewood Drive such that a 5 to 10 foot separation from groundwater was maintained. Several other RIP areas were encountered but not excavated or relocated due to the following reasons:
 - The depth to the top of the RIP soils was greater than 20 fbg
 - The RIP areas was located below a proposed street
 - The RIP area was located within an oily-soil repository
 - The TPH/TOG concentrations were < 200 mg/kg
38. During construction of the Park Ridge project, approximately 20,000 cy of oily soil was excavated from OSRs 2/3, 3, 5A, and 6A. The oily soil was re-encapsulated within OSR 5A, resulting in a three-foot increase in its height. The new cover on OSR 5A consisted of a minimum two-foot compacted clay cap and a four-foot protective vegetative soil cover.

BASIN PLAN AND RESOLUTIONS

39. The Regional Board adopted a revised Water Quality Plan for the San Francisco Bay Basin (Basin Plan) in June 21, 1995. This updated and consolidated plan represents the Regional Board's master water quality control planning document. The State Water Resource Control Board and the Office of the Administrative Law approved the revised Basin Plan on July 20 and November 13, respectively, of 1995. A summary of regulatory provisions is contained in Section 3912, Title 23 of the California Code of Regulations. The Basin Plan defines beneficial uses and water quality objectives for waters of the State, including surface water and groundwater.
40. The Basin Plan provides that all groundwaters are considered suitable, or potentially suitable, for municipal or domestic water supply (MUN) and that, in making any exceptions, the Regional Board will consider the criteria referenced in Regional Board Resolution No. 89-39, "Sources of Drinking Water", where:
- (a) The total dissolved solids exceed 3,000 mg/l (5,000 μ S/cm, electrical conductivity), and it is not reasonably expected by the Regional Board that the groundwater could supply a public water system, or
 - (b) There is contamination, either by natural processes or human activity (unrelated to the specific pollution incident), that cannot reasonably be treated for domestic use using best management practices or best economically achievable treatment practices, or
 - (c) The water source does not provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day.

BENEFICIAL USES OF SURFACE WATER AND GROUNDWATER

Groundwater

41. Existing or potential beneficial uses identified for groundwater at the Site, according to the Basin Plan, include:
- Municipal and Domestic Supply (MUN)
 - Industrial Process Supply (PROC)
 - Industrial Service Supply (IND)
 - Agricultural Supply (AGR)

Surface Water

42. Existing or potential beneficial uses identified for surface water in San Pablo Bay, according to the Basin Plan, include:
- Ocean, Commercial, and Sport Fishing (COMM)
 - Preservation of Rare and Endangered Species (RARE)
 - Water Contact Recreation (REC1)

- Non-Water Contact Recreation (REC2)
- Fish Migration (MIGR)
- Fish Spawning (SPWN)
- Wildlife Habitat (WILD)
- Estuarine Habitat (EST)
- Navigation (NAV)
- Industrial Service Supply (IND)

CALIFORNIA ENVIRONMENTAL QUALITY ACT

43. This action relates to permitting existing waste management units and is thus exempt from provisions of the California Environmental Quality Act pursuant to Section 15301, Title 14 of the California Code of Regulations.

NOTIFICATION AND PUBLIC MEETING

44. The Regional Board has notified the Discharger and interested agencies and persons of its intent to update waste discharge requirements and has provided them with an opportunity to submit their written views and recommendations.
45. The Regional Board, in a public meeting, heard and considered all comments pertaining to the proposed waste discharge requirements for the Site.

IT IS HEREBY ORDERED pursuant to the authority in Section 13263 of the California Water Code (CWC), Title 27, Division 2, Subdivision 1 of the California Code of Regulations (27CCR), and Chapter 15, Division 3, Title 23 of the California Code of Regulations (Chapter 15) that the Discharger, their agents, successors, and assigns shall meet the applicable provisions contained in 27CCR, Chapter 15, and Division 7 CWC, and shall comply with the following:

A. PROHIBITIONS

1. The treatment, storage, and discharge of groundwater shall not create a condition of pollution or nuisance as defined in Section 13050(m) CWC, nor degrade the quality of the groundwater in the aquifers to which it is injected.
2. Untreated or inadequately treated groundwater shall not create a condition of pollution or nuisance as defined in Section 13050(m) CWC, nor degrade the quality of waters of the State or of the United States.
3. The relocation of wastes to or from waste management units shall not create a condition of pollution or nuisance as defined in Section 13050 (1) and (m) CWC. Any relocated waste shall not be placed in or allowed to contact ponded water from any source whatsoever. Wastes shall not be relocated to any location where they can be discharged into waters of the State or of the United States.

4. Leachate and ponded water containing leachate or in contact with waste shall not be discharged to waters of the State or of the United States unless specifically authorized under an NPDES permit.
5. The creation of any new waste management unit is prohibited without prior Regional Board staff concurrence.
6. Excavation within or reconfiguration of any existing waste management unit is prohibited without prior concurrence of Regional Board staff. Minor excavation or reconfiguration activities such as for installation of signs or landscaping, or for routine maintenance and repair do not require prior staff concurrence.
7. The Discharger, or any future owner of the oily-soil repositories at the Site, shall not cause the following conditions to exist in waters of the State or of the United States at any place outside existing waste management units:
 - a. Surface Waters:
 - (1) Floating, suspended, or deposited macroscopic particulate matter or foam
 - (2) Bottom deposits or aquatic growth
 - (3) Adversely alter temperature, turbidity, or apparent color beyond natural background levels
 - (4) Visible, floating, suspended, or deposited oil or other products of petroleum origin
 - (5) Toxic or other deleterious substances to be present in concentrations or quantities that may cause deleterious effects on aquatic biota, wildlife, or waterfowl, or that render any of these unfit for human consumption either at levels created in the receiving waters, or as a results of biological concentrations
 - b. Groundwater:
 - (1) Further degradation of groundwater quality and/or substantial worsening of existing groundwater impacts
 - (2) Further significant migration of pollutants through subsurface transport

B. SPECIFICATIONS

1. All reports submitted pursuant to this Order shall be prepared under the supervision of and signed by a California registered civil engineer, registered geologist, or certified engineering geologist.
2. Surface drainage from tributary areas and internal site drainage from surface or subsurface sources shall not contact or percolate through wastes during the life of the Site.
3. Containment, collection, drainage, and monitoring systems at the facility, shall be maintained as long as leachate is present and poses a threat to water quality.
4. Final cover systems for waste management units shall be graded and maintained to promote lateral runoff and prevent ponding and infiltration of water.

5. The Discharger shall install any reasonable additional groundwater and leachate monitoring devices required to fulfill the terms of any future Self-Monitoring Program issued by the Executive Officer.
6. The Discharger shall maintain all devices or designed features, installed in accordance with this Order such that they continue to operate as intended without interruption.
7. The Discharger shall conduct monitoring activities according to the Self-Monitoring and Reporting Program attached to this Order and as may be amended by the Executive Officer, to verify the effectiveness of groundwater remediation and containment systems and waste management unit closure systems.
8. In the event of a release of a constituent of concern beyond the Point of Compliance (27CCR, Section 20405), the Site begins a Compliance Period (27CCR, Section 20410). During the Compliance Period, the Discharger shall perform an Evaluation Monitoring Program and a Corrective Action Program.
9. At any time, the Discharger may file a written request (including supporting documentation) with the Executive Officer, proposing modifications to the attached Self-Monitoring and Reporting Program. If the proposed modifications are acceptable, the Executive Officer may issue a letter of approval that incorporates the proposed revisions into the Self-Monitoring and Reporting Program.
10. The Discharger shall comply with all applicable provisions of 27CCR that are not specifically referred to in this Order.
11. The Discharger shall provide a minimum of two surveyed permanent monuments near each waste management unit from which the location and elevation of wastes, containment structures, and monitoring facilities can be determined throughout the operation and post-closure maintenance period. A licensed land surveyor or registered civil engineer shall install these monuments.
12. The Discharger shall notify the Regional Board immediately of any failure occurring in any waste management unit. Any failure that threatens the integrity of any containment and control facilities, structures, or devices, shall be promptly corrected after approval of the method and schedule by the Executive Officer.
13. The Discharger shall maintain the waste management units so as to prevent a statistically significant increase in water quality parameters at points of compliance as provided in 27CCR, Section 20420.

C. PROVISIONS

1. **Self-Monitoring Program:** The Discharger shall comply with the updated Self-Monitoring Program (SMP) as attached to this Order (Part A and Part B). The attached SMP is designed to collect information necessary to evaluate the integrity of active and closed waste management units. The attached SMP is also designed to detect any discharges from waste management units and the significance and stability of any discharge. The attached SMP may be amended at the discretion of the Executive Officer, as necessary to better evaluate site conditions and discharges.

COMPLIANCE DATE: Immediate

2. **Location, Ownership, and Description of Remain-in-Place Areas:** The Discharger shall submit a technical report, acceptable to the Executive Officer, that documents the current locations and ownership of all remain-in-place (RIP) oily-soil areas. The report can be based solely on previously published information. The report shall include the following information:
 - a. Volume of oily soil in each RIP area
 - b. Range of TPH and TOG concentrations in each RIP area (max, min, & average)
 - c. Depth of burial beneath the current ground surface
 - d. Nature of the cover soils
 - e. Distance of separation from groundwater
 - f. Property owner and land use type (e.g., residential, commercial, etc.) where each RIP area is located
 - g. A map illustrating the locations of all RIP areas with respect to roadways, development features, and oily-soil repositories

COMPLIANCE DATE: July 30, 2003

3. **Report of Waste Discharge:** The Discharger shall submit a technical report, acceptable to the Executive Officer, describing any proposed material change in the character, location, or volume of a discharge, or in the event of a proposed change in use or development of the oily-soil repositories [CWC Section 13260(c)]. The technical report shall describe the project, identify key changes to the design that may impact waste management units, and specify components of the design necessary to maintain integrity of waste management unit covers and prevent water quality impacts. No material changes to the oily-soil repositories shall be made without approval by the Executive Officer.

COMPLIANCE DATE: 120 days prior to any material change

4. **Institutional Constraints:** In the event the Discharger transfers ownership of a property where petroleum hydrocarbons exist, the Discharger shall submit a technical report, acceptable to the Executive Officer, that documents the recording of a property deed notification and/or restriction. This includes properties where OSRs and RFRs are located and may include other properties owned by the Discharger where RIP areas are located. The technical report shall document how each property deed notification and/or restriction was recorded and the language used to document 1) the existence of petroleum hydrocarbon soil

contamination on the property, 2) the restrictions necessary to limit human exposure to soil and groundwater contaminants, 3) the measures necessary to maintain the integrity of the oily-soil waste management units and prevent further waste discharge, and 4) any third parties that are responsible for maintenance and/or monitoring requirements that could affect the integrity of the waste management units or otherwise cause or threaten to cause further waste discharge.

COMPLIANCE DATE: 30 days after transfer of ownership

5. **Financial Assurance:** The Discharger shall obtain and maintain a Financial Assurance Instrument, acceptable to the Executive Officer, until the end of the Post-Closure Maintenance period for each waste management unit subject to 27CCR, Chapter 6, Subdivision 1, Division 2, and Chapter 15, Section 2550.0. The Discharger shall submit a report every five years that either validates the Instrument's ongoing viability or proposes and substantiates any needed changes (e.g., a documented increase in the monitoring systems' ability to provide reliable early detection of a release can cause a decrease in the Instrument's financial coverage). For the purposes of planning the amount of the fund, the Discharger shall assume a post-closure period of at least 30 years. However, the post-closure maintenance period shall extend as long as the wastes pose a threat to water quality.

COMPLIANCE DATE: September 30, 2003, then every five years thereafter

6. **Stormwater Control Plans:** For each proposed development on property owned by the Discharger and greater than 5 acres in size, the Discharger shall submit a Notice of Intent to the State Water Resources Control Board, submit a Storm Water Pollution Prevention Plan acceptable to the Executive Officer, and implement Best Management Practices (BMPs) for the control of stormwater, in accordance with requirements specified in the State Water Resources Control Board General Permit for Storm Water Discharges Associated with Construction Activities (NPDES Permit No. CAS000002). The Discharger will be deemed in compliance with this provision if another party constructing improvements on property owned by the Discharger, pursuant to an easement granted by the Discharger, has obtained coverage under the General Permit.

COMPLIANCE DATE: 30 days prior to construction

7. **Availability:** A copy of these waste discharge requirements shall be maintained by the Discharger and shall be made available by the Discharger to all employees or contractors performing work (maintenance, monitoring, repair, construction, etc.) related to the oily-soil repositories at the Site. [CWC Section 132631]
8. **Change In Ownership:** The Discharger must notify the Executive Officer, in writing at least 30 days in advance of any proposed transfer of this Order's responsibility and coverage to a new Discharger. The notice must include a written agreement between the existing Discharger and the new Discharger containing a specific date for the transfer of this Order's responsibility and coverage between the current Discharger and the new Discharger. This agreement shall include an acknowledgment of which Discharger is liable for violations up to the transfer date and which Discharger is liable from the transfer date on. [CWC Sections 13267 and 13263]

9. **Revision:** These waste discharge requirements are subject to review and revision by the Regional Board. [CCR Section 13263]
10. **Termination:** Where the Discharger becomes aware that it failed to submit any relevant facts in a Report of Waste Discharge or submitted incorrect information in a Report of Waste Discharge or in any report to the Regional Board, it shall promptly submit such facts or information. [CWC Sections 13260 and 13267]
11. **Vested Rights:** This Order does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, do not protect the Discharger from liability under Federal, State or local laws, nor do they create a vested right for the Discharger to continue the waste discharge. [CWC Section 13263(g)]
12. **Severability:** Provisions of these waste discharge requirements are severable. If any provisions of these requirements are found invalid, the remainder of these requirements shall not be affected. [CWC 9213]
13. **Operation and Maintenance:** The Discharger shall, at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with conditions of this Order. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls including appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this order. [CWC Section 13263(f)]
14. **Reporting of Hazardous Substance Release:** If any hazardous substance is discharged in or on any waters of the State, or discharged or deposited where it is, or probably will be, discharged in or on any waters of the State, the Discharger shall report such discharge to the Regional Board by calling (510) 286-1255 during regular office hours (Monday through Friday, 8:00 to 5:00). A written report shall be filed with the Regional Board within five working days. The report shall describe: the nature of the hazardous substance, estimated quantity involved, duration of incident, cause of release, estimated size of affected area, nature of effect, corrective actions taken or planned, schedule of corrective actions planned, and persons/agencies notified.
15. **Entry and Inspection:** The Discharger shall allow the Regional Board, or an authorized representative upon the presentation of credentials and other documents as may be required by law, to:
 - a. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this order;
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this order;
 - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and

- d. Sample or monitor at reasonable times, for the purposes of assuring compliance with this order or as otherwise authorized by the California Water Code, any substances or parameters at any location. [CWC Section 13267]
16. **Monitoring Devices:** All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year, or more frequently, to ensure continued accuracy of the devices. Annually, the Discharger shall submit to the Executive Officer a written statement signed by a registered professional engineer certifying that all flow measurement devices have been calibrated and will reliably achieve the accuracy required.
17. **Analytical Methods:** Unless otherwise permitted by the Regional Board Executive officer, all analyses shall be conducted at a laboratory certified for such analyses by the State Department of Health Services. The Regional Board Executive Officer may allow use of an uncertified laboratory under exceptional circumstances, such as when the closest laboratory to the monitoring location is outside the State boundaries and therefore not subject to certification. All analyses shall be required to be conducted in accordance with the latest edition of "Guidelines Establishing Test Procedures for Analysis of Pollutants" [40 CFR Part 136] promulgated by the U.S. Environmental Protection Agency. [CCR Title 23, Section 2230]
18. **Discharges To Navigable Waters:** Any person discharging or proposing to discharge to navigable waters from a point source (except for discharge of dredged or fill material subject to Section 404 of the Clean Water Act and discharge subject to a general NPDES permit) must file an NPDES permit application with the Regional Board. [CCR Title 2 Section 223571]
19. **Endangerment of Health or the Environment:** The Discharger shall report any noncompliance that may endanger health or the environment. Any such information shall be provided orally to the Executive officer within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected; the anticipated time it is expected to continue and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Executive Officer, or an authorized representative, may waive the written report on a case-by-case basis if the oral report has been received within 24 hours. The following occurrences must be reported to the Executive Officer within 24 hours;
 - a. Any bypass from any portion of the treatment facility.
 - b. Any discharge of treated or untreated wastewater resulting from sewer line breaks, obstruction, surcharge or any other circumstances.
 - c. Any treatment plant upset that causes the effluent limitation of this Order to be exceeded. [CWC Sections 13263 and 13267]

20. **Document Distribution:** Copies of all correspondence, technical reports, and other documents pertaining to compliance with this Order shall be provided to the following agencies:

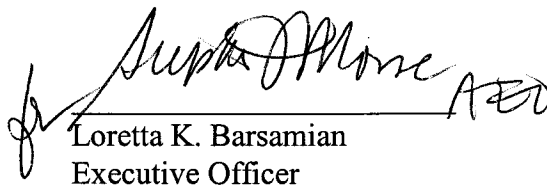
- a. RWQCB - San Francisco Bay Region
- b. Contra Costa County Department of Environmental Health

The Executive Officer may modify this distribution list as needed.

21. **Duty to Comply:** The Discharger shall comply immediately, or as prescribed by the time schedule below, with all Prohibitions, Specifications and Provisions of this Order. All required submittals must be acceptable to the Executive Officer. The Discharger must also comply with all conditions of these waste discharge requirements. Violations may result in enforcement actions, including Regional Board orders or court orders requiring corrective action or imposing civil monetary liability, or in modification or revocation of these waste discharge requirements by the Regional Board. (CWC Section 13261, 13263, 13265, 13268, 13300, 13301, 13304, 13340, 13350).
22. **Requests for Technical Reports:** All technical and monitoring reports required by this Order are requested pursuant to Section 13267 of the California Water Code. Failure to submit reports in accordance with schedules established by this Order or failure to submit a report of sufficient technical quality to be acceptable to the Executive Officer may subject the Discharger to enforcement action pursuant to Section 13268 of the California Water Code. Evidence relating to the Discharger's past discharges is located in the Regional Board files.
23. **Electronic Reporting Format:** In addition to print submittals, all reports submitted pursuant to this Order must be submitted as electronic files in PDF format. The Regional Board has implemented a document imaging system, which is ultimately intended to reduce the need for printed report storage space and streamline the public file review process. Documents in the imaging system may be viewed, and print copies made, by the public, during file reviews conducted at the Regional Board's office. PDF files can be created by converting the original electronic file format (e.g., Microsoft Word) and/or by scanning printed text, figures & tables. Data tables containing water level measurements, sample analytical results, coordinates, elevations, and other monitoring information shall also be provided electronically in Microsoft Excel[®] or similar spreadsheet format to provide an easy to review summary, and to facilitate data computations and/or plotting that Regional Board staff may undertake during their review. Data tables submitted in electronic spreadsheet format will not be included in the case file for public review. All electronic files must be submitted on CD or diskette and included with the print report.

24. This Order supersedes WDR Order No. 91-125. Order No. 91-125 is hereby rescinded.

I, Loretta K. Barsamian, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on April 16, 2003.


Loretta K. Barsamian
Executive Officer

Attachments: Figure 1 - Site Location and Vicinity Map
 Figure 2 - Locations of Oily-Soil Repositories and Monitoring Wells
 Figure 3A & 3B - Locations of Repositories, RIPs & Site Development Projects
 Figure 4 - Groundwater Elevations and Flow Directions
 Figure 5 - Subdivision and Site Development
 Self-Monitoring Program (Part A and Part B)

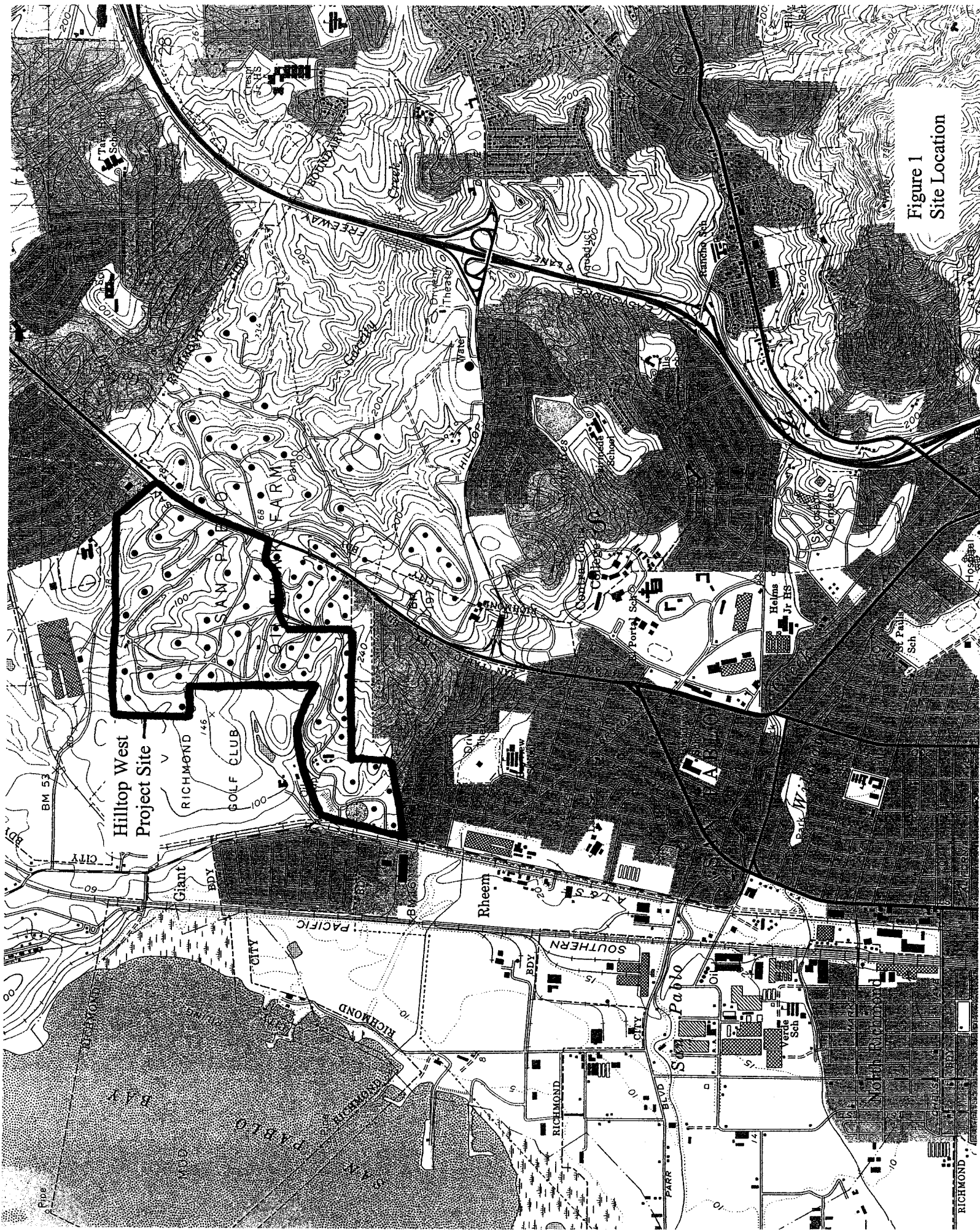


Figure 1
Site Location

Legend:

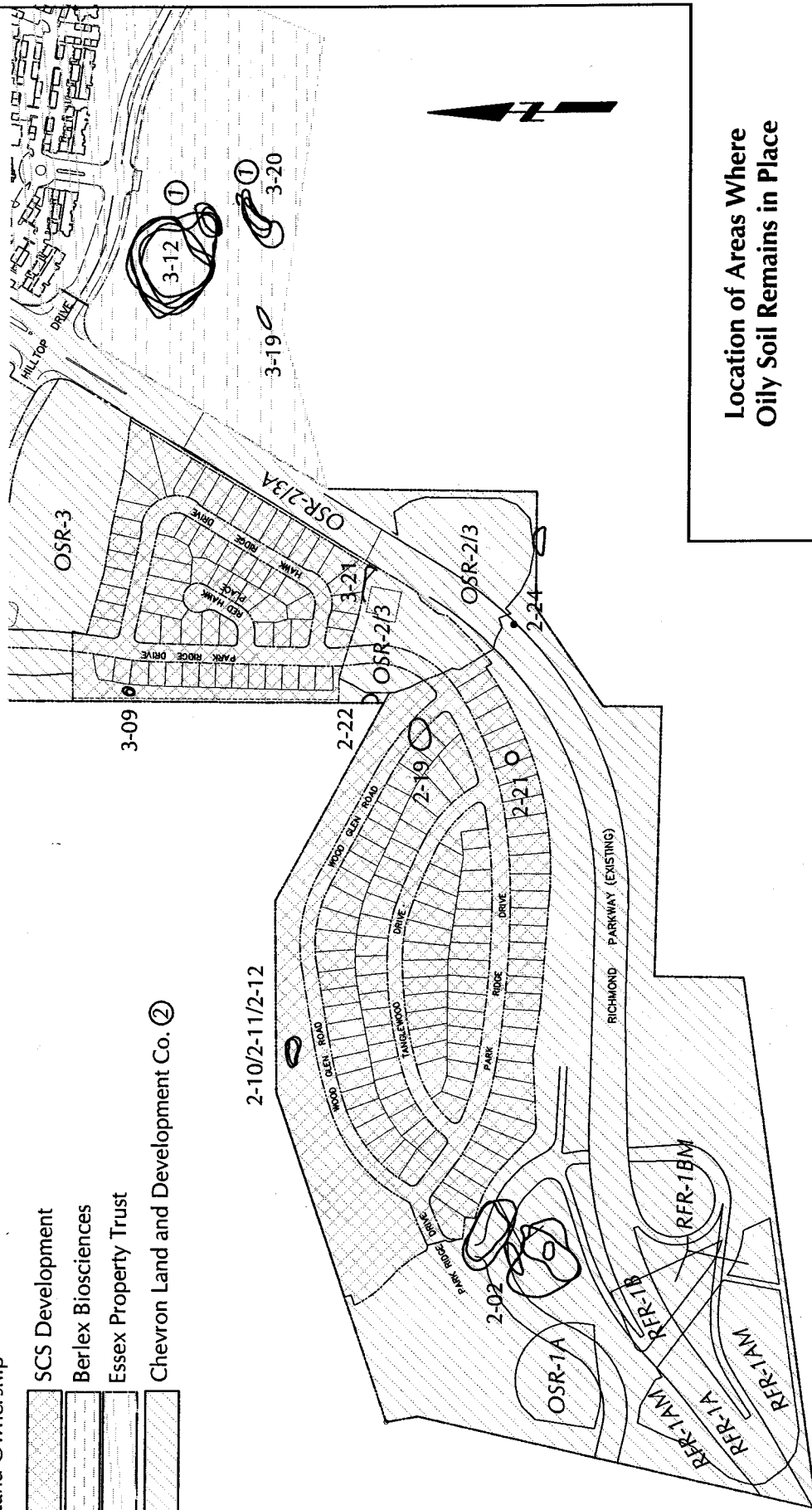
- OSR
RFR
- Open space repository
Road fill repository
RIP Areas (Areas where oily soil remains in place)

Land Ownership

- SCS Development
Berlex Biosciences
Essex Property Trust
Chevron Land and Development Co. ②

Note:

- ① Size of RIP area shown does not reflect additional remediation performed in 1992
② Includes property controlled by others through easements granted by CLDC

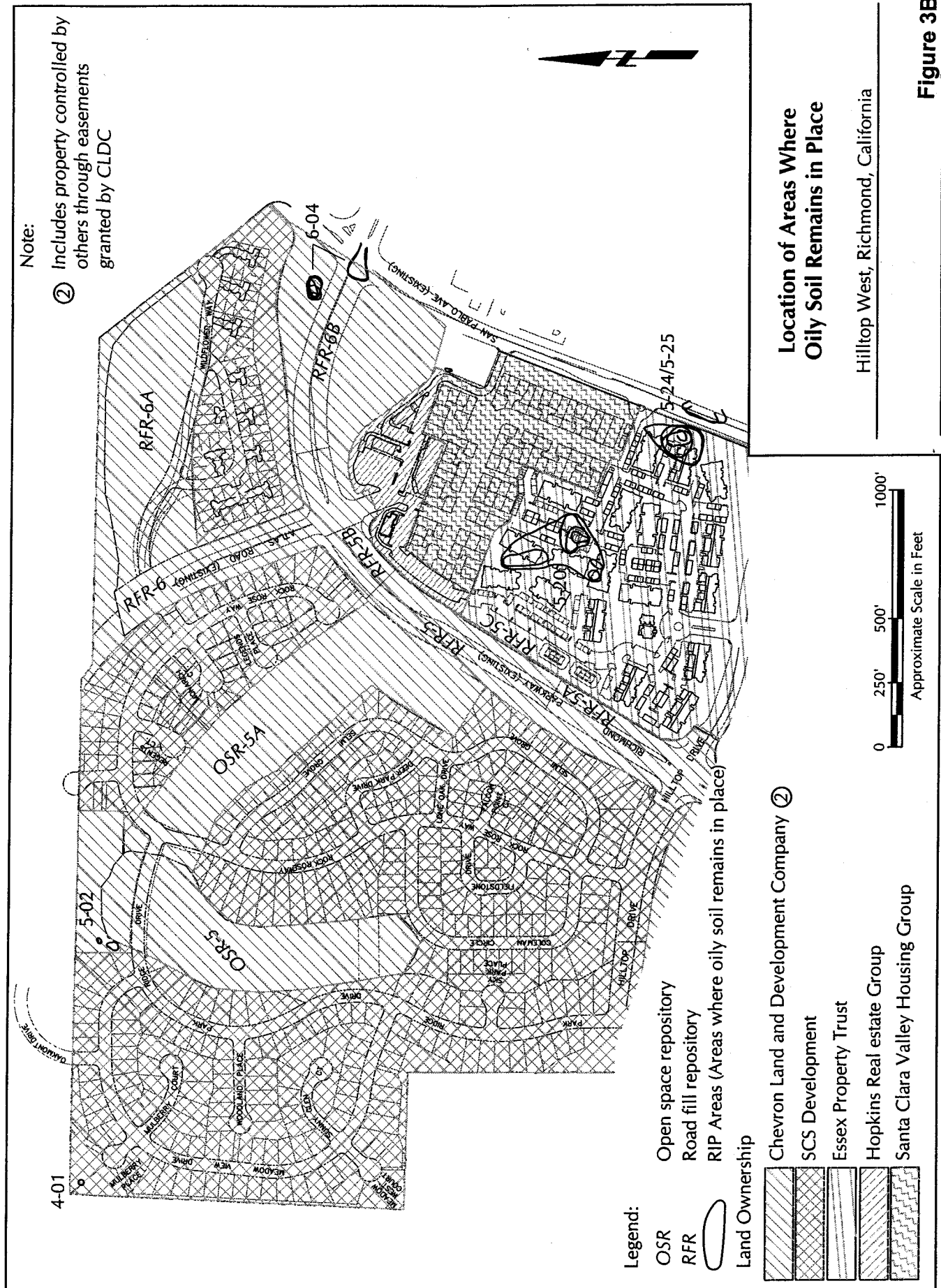


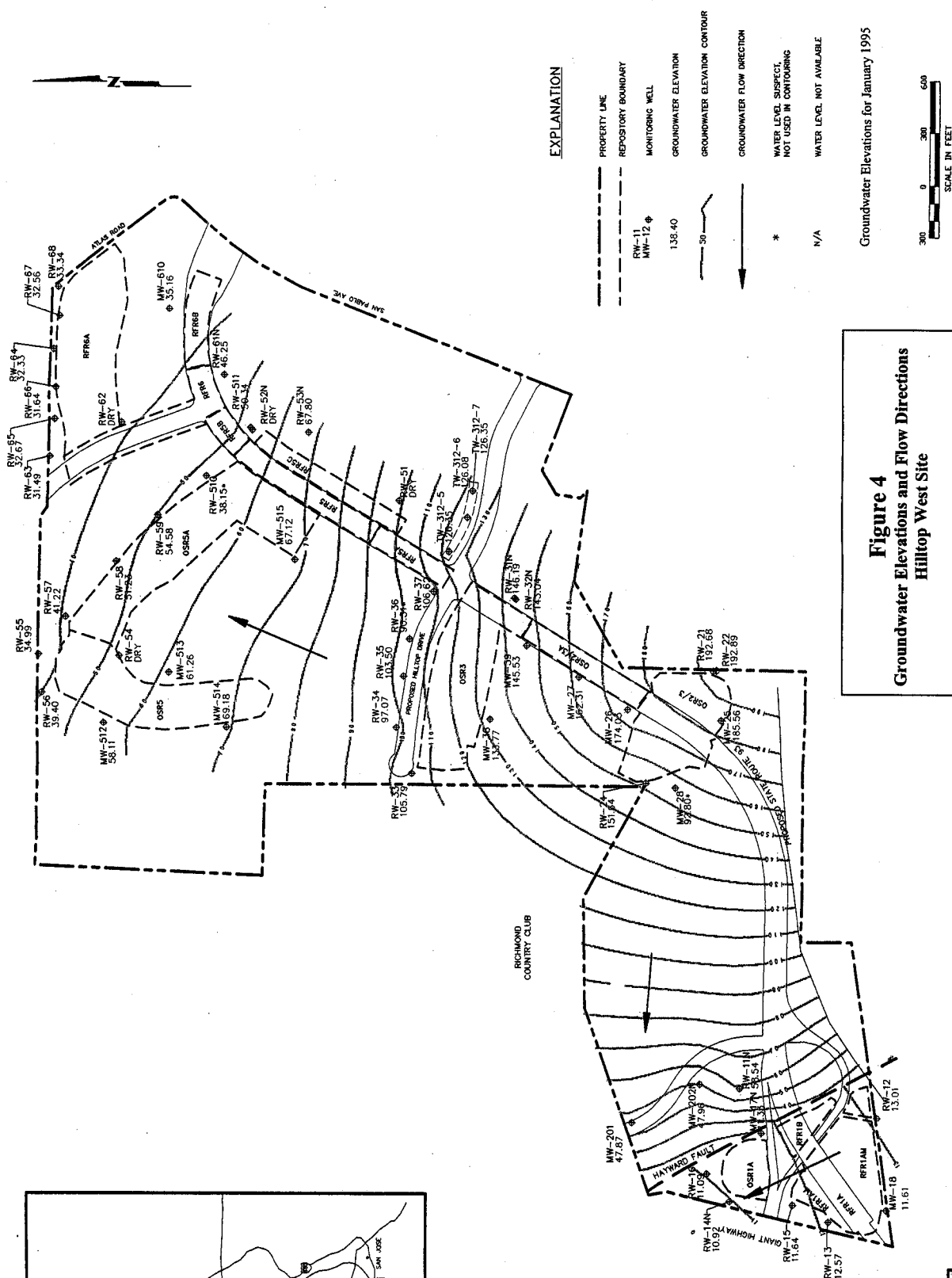
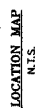
Location of Areas Where Oily Soil Remains in Place

Hilltop West, Richmond, California

Approximate Scale in Feet

Figure 3A





RD

General Plan Land Use Designations





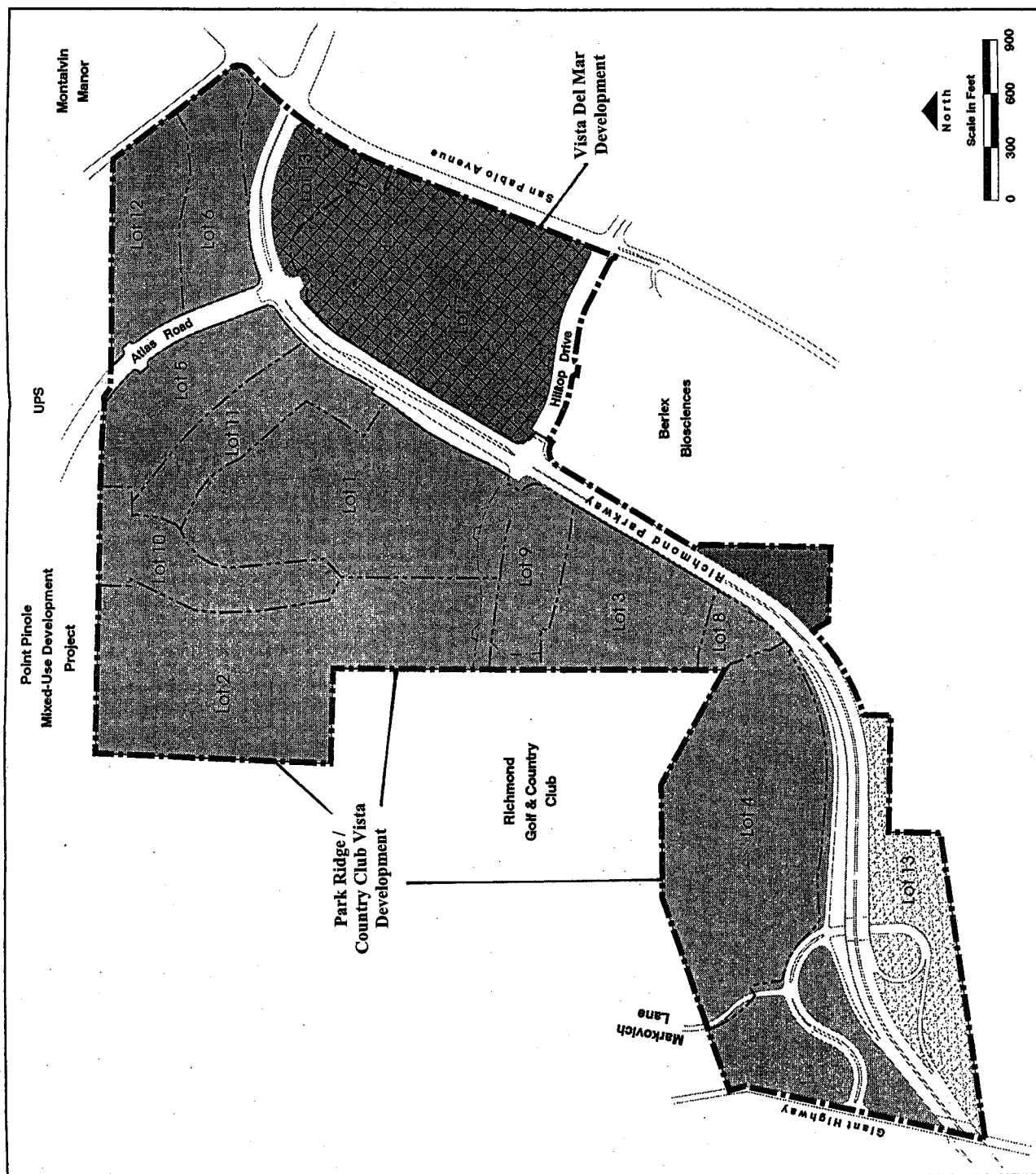
	918 Residential, Medium (9 to 28 sq/acre)
	920 Industrial / Office Flex
	920 / 930 Industrial / Office Flex / Regional Office / Shopping
	908 Recreation Lands

Figure 5
Subdivision and Development
Hilltop West Site



Source: Base information provided by CSW/Stuber-Stroeh Engineering Group, Inc.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR

CHEVRON LAND AND DEVELOPMENT COMPANY

HILLTOP WEST PROJECT
FORMER CHEVRON SAN PABLO TANK FARM
RICHMOND, CONTRA COSTA COUNTY

ORDER NO. R2-2003-0032

CONSISTS OF

PART A

AND

PART B

PART A

A. AUTHORITY AND PURPOSE

For discharges of waste to land, water quality monitoring is required pursuant to the California Code of Regulations, Division 2, Title 27, Subdivision 1, Chapter 3, Subchapter 3, Sections 20380 through 20435. The principal purposes of a self-monitoring program (SMP) are: (1) to document compliance with waste discharge requirements and prohibitions established by the Regional Board, (2) to facilitate self-policing by the waste discharger in the prevention and abatement of pollution arising from the waste discharge, (3) to develop or assist in the development of effluent standards of performance, and toxicity standards, and (4) to assist the discharger in complying with the requirements of Title 27.

B. MONITORING REQUIREMENTS

Monitoring refers to the measurement and sampling of environmental media, the making of standard observations in and around waste management units (WMUs), the inspection of containment and control facilities, and the monitoring of waste disposed in each WMU. Part B of this SMP indicates the specific types of monitoring required as well as the monitoring frequency and reporting schedule. The following defines the types of monitoring that may be required in Part B of this SMP.

Monitoring of Environmental Media

The Regional Board may require monitoring of any of the following environmental media:

1. Groundwater
2. Surface water (streams, stormwater runoff, etc.)
3. Leachate
4. Landfill gas

Sample collection, storage, and analyses shall be performed according to the most recent version of EPA Standard Methods or in accordance with an approved sampling and analysis plan. Water and waste analyses shall be performed by a California State approved laboratory for the required analyses. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Regional Board. All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

Standard Observations

Standard observations refers to observations within the limits of each WMU, at their perimeter, and of the receiving waters beyond their limits. Standard observations include:

1. WMUs:
 - a. Evidence of ponded water at any point on the WMU

- b. Evidence of odors, including their presence or absence, characterization, source, and distance of travel from source
 - c. Evidence of erosion and/or daylighted waste
2. Perimeter of WMUs:
 - a. Evidence of liquid leaving or entering the WMU, estimated size of affected area and flow rate (show affected area on map)
 - b. Evidence of odors, including their presence or absence, characterization, source, and distance of travel from source
 - c. Evidence of erosion and/or daylighted waste
3. Receiving Waters:
 - a. Floating and suspended materials of waste origin: including their presence or absence, source, and size of affected area
 - b. Discoloration and turbidity: description of color, source, and size of affected area
 - c. Evidence of odors, presence or absence, characterization, source, and distance of travel from source
 - d. Evidence of beneficial use: presence of water associated with wildlife
 - e. Flow rate
 - f. Weather conditions: wind direction and estimated velocity, total precipitation

Facilities Inspections

Facilities inspections refers to the inspection of all containment and control structures and devices associated with WMUs. Containment and control facilities include the following:

1. Leachate Collection and Removal System(s)
2. Sedimentation Pond(s)
3. Leachate Collection Tank(s)
4. Perimeter diversion channels
5. Underdrain system.

Waste Monitoring

Waste monitoring includes recording the total volume (in cubic yards) and weight (in tons) of waste disposed in each WMU during each month, and the percentage of each waste type (e.g., residential, commercial, industrial, construction/demolition, etc.)

C. REPORTING REQUIREMENTS

Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13383, and 13387(b) of the California Water Code and this Regional Board's Resolution No.73-16 and Order No. 93-113. The monitoring frequency and reporting schedule are indicating in Part B of this SMP. Each monitoring report shall include the following information:

1. **Transmittal Letter:** A letter transmitting essential points shall be included in each monitoring report. The transmittal letter shall discuss any violations during the reporting period and actions taken or planned to correct the problem. The letter shall also certify the completion of all monitoring requirements. The letter shall be signed by the discharger's principal executive officer or his/her duly authorized representative, and shall include a statement by the official, under penalty of perjury, that the report is true and correct to the best of the official's knowledge.
2. **Compliance Evaluation Summary:** Each monitoring report shall include a compliance evaluation summary containing the following information:
 - a. A summary and certification of completion of all environmental media monitoring, standard observations, and facilities inspections
 - b. A graphic presentation of the velocity and direction of groundwater flow under/around each waste management unit, based upon the past and present water level elevations and pertinent visual observations
 - c. A graphic demonstration (e.g., piezometric surface contour maps) of hydraulic containment and/or separation from groundwater beneath and around the perimeter of waste management units where required
 - d. The quantity and types of wastes disposed of during the past quarter, and the locations of the disposal operations
 - e. A description of the waste stream including the percentage of each waste type (e.g., residential, commercial, industrial, construction/demolition, etc.)
 - f. Map(s) or aerial photograph(s) showing observation and monitoring station locations
 - g. An evaluation of the effectiveness of the leachate monitoring/control facilities, including a summary of leachate management procedures, an evaluation of leachate buildup within each WMU, a summary of leachate volumes removed from the units, and a discussion of the leachate disposal methods and leachate containment capacity for each WMU
 - h. The signature of the laboratory director whose name appears on the laboratory certification, indicating that he/she has supervised all analytical work in his/her laboratory
3. **Appendices:** Include the following information in appendices, unless the information is already contained in an approved Sampling and Analysis Plan:
 - a. New boring and well logs
 - b. Method and time of water level measurements
 - c. Purging methods and results including the type of pump used, pump placement in the well, pumping rate, equipment and methods used to monitor field pH, temperature, and conductivity, calibration of the field equipment, pH, temperature, conductivity, and turbidity measurements, well recovery time, and method of disposing of the purge water
 - d. Sampling procedures, field and travel blanks, number and description of duplicate samples, type of sample containers and preservatives used, the date and time of sampling, the name and qualifications of the person actually taking the samples, and any other relevant observations

- e. Documentation of laboratory results, analytical methods, detection limits, and Quality Assurance/Quality Control (QA/QC) procedures for the required sampling, including:
 - (1) Laboratory statements of results of analyses
 - (2) Descriptions of analytical methods used (note, if methods other than EPA approved methods or Standard Methods are used, the exact methodology must be submitted for review and approval by the Executive Officer prior to use)
 - (3) Actual detection limits for each sample results (note, detection limits must be appropriate for the expected concentrations)
 - (4) Laboratory quality assurance/quality control (QA/QC) information and results including analytical methods, detection limits, recovery rates, explanations for low recovery rates (less than 80%), equipment and method blanks, spikes and surrogates, and QA/QC sample frequency

The appendices need not include the actual laboratory analytical data sheets and QA/QC report summary, however, this information shall be provided upon request.

D. ANNUAL REPORTING

The discharger(s) shall submit an annual self-monitoring report to the Regional Board covering the previous calendar year. The annual report must summarize all monitoring, investigation, and remedial activities that have occurred in the previous year. The annual report shall include the following information **for each monitoring event during the year** required pursuant to this self-monitoring program, in addition to the transmittal letter and appendices described in Sections C.1 and C.3 of this self monitoring program:

- 1. **Graphic Presentation:** Include site maps (plot plans) for each aquifer or water-bearing zone monitored that are drawn to a scale that remains constant from reporting period to reporting period. These maps shall include the following information:
 - a. Known or probable contaminant sources
 - b. Well locations
 - c. Groundwater elevation contours
 - d. Inferred groundwater flow direction(s)
 - e. Extent of phase-separated product (NAPL)
 - f. Extent of dissolved chemical constituents (e.g., isoconcentration maps)
 - g. Appropriate analytical results

Line or bar graphs are helpful to illustrate variations in groundwater elevations, phase-separated product thickness, and dissolved chemical concentrations with time. Geologic cross sections are required if new data is available and/or the previous interpretation of subsurface conditions has changed. When required, geologic cross sections shall include the following:

- h. Vertical and lateral extent of contamination
- i. Contaminant sources
- j. Geologic structures

- k. Soil lithology
 - l. Water table/piezometric surfaces
 - m. Sample locations
 - n. Sample analytical results
 - o. Subsurface utilities and any other potential natural or manmade conduits for contaminant migration
2. **Tabular Presentation:** Present all of the following data in one or more tables to show a chronological history and allow quick and easy reference:
- a. Well designations
 - b. Well location coordinates (latitude and longitude)
 - c. Well construction (including top of well casing elevation, total well depth, screen interval depth below ground surface, and screen interval elevation)
 - d. Groundwater depths
 - e. Groundwater elevations
 - f. Horizontal groundwater gradients
 - g. Vertical groundwater gradients (including comparison wells from different zones)
 - h. Phase-separated product elevations
 - i. Phase-separated product thicknesses
 - j. Current analytical results (including analytical method and detection limits for each constituent)
 - k. Historical analytical results (including the past five years unless otherwise requested)
 - l. Measurement dates
 - m. Groundwater extraction, including:
 - (1) Average daily extraction rate
 - (2) Total volume extracted for monitoring period
 - (3) Cumulative total volume extracted since system inception
 - n. Contaminant mass removal, including:
 - (1) Average daily removal rate
 - (2) Total mass removed for monitoring period
 - (3) Cumulative total mass removed since system inception
 - o. Leachate volumes removed and disposed of, including leachate buildup in disposal units
3. **Discussion:** Provide a discussion of the field and laboratory results that includes the following information:
- a. Data Interpretations
 - b. Conclusions
 - c. Recommendations
 - d. Newly implemented or planned investigations & remedial measures
 - e. Data anomalies
 - f. Variations from protocols
 - g. Conditions of wells
 - h. Effectiveness of leachate monitoring and control facilities

E. CONTINGENCY REPORTING

1. The discharger(s) shall report by telephone to the Regional Board, any discharge from the disposal area immediately after it is discovered. The discharger(s) shall submit a written report with the Regional Board within five days of discovery of any discharge. The written report shall contain the following information:
 - a. a map showing the location(s) of discharge
 - b. approximate flow rate
 - c. nature of effects (e.g., all pertinent observations and analyses)
 - d. corrective measures underway or proposed
2. The discharger(s) shall submit a written report to the Regional Board within seven days of determining that a statistically significant difference occurred between a self-monitoring sample set and an approved Water Quality Protection Standard (WQPS). The written report shall indicate what WQPS(s) have been exceeded. The discharger(s) shall immediately resample at the compliance point(s) where this difference has been found and analyze another sample set of at least four portions split in the laboratory from the source sample.
3. If re-sampling and analysis confirms the earlier finding of a statistically significant difference between self-monitoring results and WQPS(s) the discharger(s) shall submit to the Regional Board an amended Report of Waste Discharge as specified in Title 27, Section 20420 for establishment of an Evaluation Monitoring program meeting the requirements of Title 27, Section 20425.
4. Within 180 days of determining statistically significant evidence of a release, the discharger(s) shall submit to the Regional Board an engineering feasibility study for a Corrective Action Plan (CAP) necessary to meet the requirements of Title 27, Section 20430. At a minimum, the feasibility study shall contained a detailed description of the corrective action measures that could be taken to achieve background concentrations for all constituents of concern.

F. ELECTRONIC REPORTING FORMAT

In addition to print submittals, all reports submitted pursuant to this self-monitoring program must be submitted as electronic files in PDF format. The Regional Board has implemented a document imaging system, which is ultimately intended to reduce the need for printed report storage space and streamline the public file review process. Documents in the imaging system may be viewed, and print copies made, by the public, during file reviews conducted at the Regional Board's office. PDF files can be created by converting the original electronic file format (e.g., Microsoft Word) and/or by scanning printed text, figures & tables.

Monitoring results shall also be provided electronically in Microsoft Excel® or similar spreadsheet format to provide an easy to review chronological summary of monitoring data, and to facilitate data computations and/or plotting that Regional Board staff may undertake during their review. Data tables submitted in electronic spreadsheet format will not be

included in the case file for public review. Electronic tables shall include the following information:

1. Well designations
2. Well location coordinates (latitude and longitude)
3. Well construction (including top of well casing elevation, total well depth, screen interval depth below ground surface, and screen interval elevation)
4. Groundwater depths (water levels)
5. Groundwater elevations
6. Phase-separated product elevations
7. Phase-separated product thicknesses
8. Current analytical results by constituent of concern (including detection limits for each constituent)
9. Historical analytical results (including the past five years unless otherwise requested)
10. Measurement dates

All electronic files must be submitted on CD or diskette and included with the print report.

G. MAINTENANCE OF WRITTEN RECORDS

Information required pursuant to this Self-Monitoring Program shall be maintained by the discharger(s) for a minimum of five years. The five-year period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Board.

PART B

A. MONITORING LOCATIONS AND FREQUENCY

1. Groundwater, Surface Water, Leachate, and Landfill Gas

Environmental media shall be monitored at locations indicated on Figure B-1 and in accordance with Table B-1.

2. Standard Observations

Standard observations shall be made for all Open-Space Repositories and Road-Fill Repositories at least once per year.

3. Facilities Inspections

All repository covers, including clay caps, vegetated soil covers, and road surface materials shall be inspected at least once per year.

4. Waste Monitoring

Not Applicable.

B. REPORTING SCHEDULE

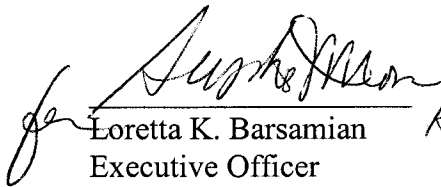
The discharger(s) shall submit self-monitoring reports per the schedule indicated in Table B-2. Reports due at the same time may be combined into one report for convenience, as long as monitoring activities and results pertaining to each monitoring period are clearly distinguishable. All monitoring reports shall be submitted to the Regional Board in accordance with the schedule indicated in Table B-2.

Table B-2 Reports, Monitoring Periods, and Due Dates

Report Type	Monitoring Periods	Due Dates
Groundwater Monitoring	Annual	June 30
Standard Observations & Facilities Inspections	Annual	June 30

I, Loretta K. Barsamian, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedures set forth in this Regional Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in this Regional Board's Order No. R2-2003-0032.
2. Is effective on the date shown below.
3. May be reviewed or modified at any time subsequent to the effective date, upon written notice from the Executive Officer.


Loretta K. Barsamian
Executive Officer

Date Ordered: April 16, 2003

Attachments: Table B-1
Figure B-1

Table B-1
Self Monitoring Program (SMP) for Order No. R2-2003-0032, Hilltop West Project, Former Chevron San Pablo Tank Farm

Well ID	Well Construction Details ⁽¹⁾		Historic Self Monitoring Program (for reference only)					Updated Self Monitoring Program				
	date installed	screen interval ftgs	Water Level	TPH-g ⁽²⁾	TPH-d ⁽²⁾	TPH-k ⁽²⁾	BTEX ⁽³⁾	Water Level	TPH-g ⁽²⁾	TPH-d ⁽²⁾	TPH-k ⁽²⁾	BTEX ⁽³⁾
RW-12			A-2	A-2		A-2	A-2	A-2	A-2	A-2	A-2	A-2
RW-13	April-89	19-28	A-2	A-2	A-2	A-2	A-2	A-2	BAO-2		BAO-2	BAO-2
RW-14N			A-2	A-2		A-2	A-2					
RW-16			A-2	A-2		A-2	A-2					
RW-22	April-89	22-32	A-2	A-2		A-2	A-2	A-2				
RW-24	April-89	7-17	A-2	A-2		A-2	A-2	A-2				
RW-31N			A-2	A-2		A-2	A-2					
RW-33			A-2	A-2		A-2	A-2					
RW-34			A-2	A-2		A-2	A-2					
RW-35	November-92	40-50	A-2	A-2		A-2	A-2	A-2	BAE-2		BAE-2	BAE-2
RW-37			A-2	A-2		A-2	A-2					
RW-56	November-92	50-60	A-2	A-2		A-2	A-2	A-2	BAE-2		BAE-2	BAE-2
RW-57			A-2	A-2		A-2	A-2					
RW-58	November-92	34-44	A-2	A-2		A-2	A-2	A-2	BAO-2		BAO-2	BAO-2
RW-61N			A-2	A-2		A-2	A-2					
RW-63			A-2	A-2		A-2	A-2					
RW-64	April-89	31.5-41.5	A-2	A-2	A-2	A-2	A-2	A-2	A-2	A-2	A-2	A-2
RW-65	November-92	15-50	A-2	A-2		A-2	A-2	A-2	BAE-2		BAE-2	BAE-2
RW-68	November-92	75-85	A-2	A-2		A-2	A-2	A-2	BAO-2		BAO-2	BAO-2
RW-510			A-2	A-2		A-2	A-2					
RW-511	November-92	30-40	A-2	A-2		A-2	A-2	A-2	BAE-2		BAE-2	BAE-2
MW-18			A-2	A-2		A-2	A-2					
MW-26			A-2	A-2		A-2	A-2					
MW-27	November-92	75.5-85.5	A-2	A-2		A-2	A-2	A-2	BAE-2		BAE-2	BAE-2
MW-29	October-99	35-55	A-2	A-2		A-2	A-2	A-2	BAO-2		BAO-2	BAO-2
MW-39	November-92	50-60	A-2	A-2		A-2	A-2	A-2	BAO-2		BAO-2	BAO-2
MW-202N			A-2	A-2		A-2	A-2					
MW-515			A-2	A-2		A-2	A-2					
MW-517	September-00	60-80	A-2	A-2		A-2	A-2	A-2	BAO-2		BAO-2	BAO-2
MW-611	September-00	62-82	A-2	A-2		A-2	A-2	A-2	BAE-2		BAE-2	BAE-2
TW-312-6			A-2	A-2		A-2	A-2					

Bolded monitoring frequency indicates that the parameter is new for that well.

⁽¹⁾ Transmissive Zones Beneath the Site:

⁽²⁾ TPH-g, d, k by EPA Method 8015m.

⁽³⁾ BTEX by EPA Method 8021B or 8260B.

KEY

M = monthly monitoring

Q = quarterly monitoring according to the following schedule:

1st quarter = Jan thru Mar

2nd quarter = Apr thru Jun

3rd quarter = Jul thru Sep

4th quarter = Oct thru Dec

SA-1,3 = semi-annual monitoring during first and third quarters

A-2 = annual monitoring during second quarter

BAO-2 = biannual monitoring in odd numbered years during second quarter

BAE-2 = biannual monitoring in even numbered years during second quarter

